

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 January 2005 (27.01.2005)

PCT

(10) International Publication Number
WO 2005/008781 A1

(51) International Patent Classification¹: **H01L 27/146,**
31/10

(74) Agent: KIM, Seon-Min; Lee & Kim, 5th Fl. New-Seoul
Bldg., 828-8, Yoksam-dong, Kangnam-ku, Seoul 135-935
(KR).

(21) International Application Number:
PCT/KR2004/000729

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AB, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,
MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH,
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(22) International Filing Date: 30 March 2004 (30.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10-2003-0049859 21 July 2003 (21.07.2003) KR

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,
GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

(71) Applicant (for all designated States except US): OP-
TOMECHA CO. LTD. [KR/KR]; #102, Daerung
Technotown 5th, 493, Gasan-dong, Geumchun-gu, Seoul
153-803 (KR).

(72) Inventor; and

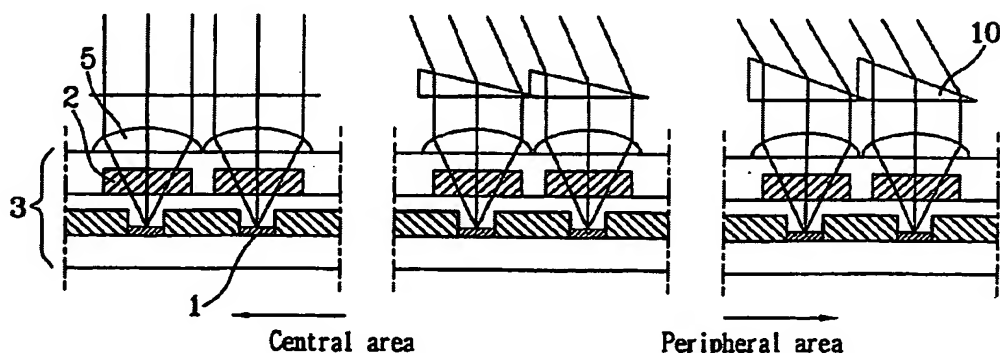
(75) Inventor/Applicant (for US only): KANG, Shinill
[KR/KR]; 102-1107, Daerim Apartment, Daebang-dong,
Dongjak-ku, Seoul 156-020 (KR).

Published:

— with international search report

[Continued on next page]

(54) Title: IMAGE SENSOR AND METHOD FOR FABRICATING THE SAME



(57) Abstract: An image sensor includes a substrate in which photoelectric elements have been formed, and an array of optical path conversion elements formed at a light so that the optical path converted light may be incident on the substrate, wherein each of the optical path conversion elements has different tangent line gradients on the corresponding parts of incident surfaces according to distances from the center of the image sensor in order to compensate for differences of incident angles of incident light according to the distances from the center of the image sensor. In addition, a method for fabricating the image sensor fabricates the optical path conversion elements according to a photolithography process using a gray scale mask, combinations of the photolithography process and a reactive ion etching process, or combinations of the photolithography process, the reactive ion etching process, and an UV-molding process.

WO 2005/008781 A1